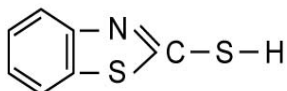




Chemicals Corp.

## Technical Data Sheet

# MBT



2-Mercaptobenzothiazole

CAS Number: 149-30-4

Molecular weight: 167.26

Molecular formula: C<sub>7</sub>H<sub>5</sub>NS<sub>2</sub>

### PRODUCT INFORMATION

PRODUCT SPECIFICATIONS		GRANULES	OIL POWDER	POWDER
Appearance		Light yellow granules	Light yellow oil powder	Light yellow powder
Initial Melting Point	°C min	171.0	171.0	171.0
Loss on drying	% max	0.40	0.40	0.40
Ash	% max	0.30	0.40	0.30
Residue on sieve (63µm)	% max	-	0.50	0.50
Residue on sieve (150µm)	% max	-	0.10	0.10
Oil content	%	-	1.0-2.0	-
<u>Typical properties</u>				
Density	g/cm <sup>3</sup>	1.42-1.52		
<u>Packaging</u>				
Bag		25kg (55 lbs)		
Pallet		500kg or 600kg (1102 lbs or 1323 lbs)		

### FUNCTION

MBT is a moderately fast curing primary accelerator for natural and synthetic rubbers.

## **APPLICATIONS AND PROPERTIES**

- MBT is used for NR, IR, SBR, NBR, HR and EPDM.
- MBT is one of the most well used acidic accelerators and a medium to fast primary accelerator.
- Imparts excellent aging properties, when used alone or in combinations with basic accelerators for higher activity.
- Has a slight tendency to scorch.
- Mainly used in the manufacture of tires, tubes, footwear, rubber belts and hoses.
- MBT also finds application in latex foam cures.
- Product is non-staining and non-discolouring.
- Has a slight odour and is non-poisonous.
- Soluble in ethyl acetone, acetone, dilute solution of sodium hydroxide and sodium carbonate, ethyl alcohol.
- Insoluble in benzene, water and gasoline.
- MBT is regulated for use under the following sections of FDA 21 CFR:
  - 175.105 – Components of Adhesives,
  - 176.300 – Slicicides in Paper and Paperboard.
  - 177.2600 – Rubber Articles Intended for Repeated Use in Food Contact.

## **STORAGE**

Material should be stored in a tightly closed container in a cool, dry, well ventilated area. Avoid exposure to direct sunlight. The maximum recommended storage life is 2 years when stored under normal conditions.

## **HANDLING PRECAUTIONS**

For detailed information on toxicological properties and handling precautions, please refer to the current Safety Data Sheet. This information is available by request from **SunBoss Chemicals Corp.**

*[Revised: November 6, 2014 by kk]*

## Safety Data Sheet

### MBT

#### 1. IDENTIFICATION OF SUBSTANCE / COMPANY INFORMATION

Chemical Name	2-mercaptobenzothiazole
Synonyms	Accelerator MBT
CAS #	149-30-4
Formula	C <sub>7</sub> H <sub>5</sub> NS <sub>2</sub>
Chemical Family	Accelerator
Supplier	<b>SunBoss Chemicals Corp.</b>
Address	<b>8-110 West Beaver Creek Road Richmond Hill, ON L4B 1J9</b>
Telephone	<b>905-707-3433</b>
Fax	<b>905-707-7393</b>

#### Emergency Information

*After normal hours call Chemtrec at 1-800-424-9300*

#### 2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CAS No.</u>	<u>Weight %</u>	<u>EC No.</u>
2-Mercaptobenzothiazole	149-30-4	97 – 100	205-736-8
White Mineral Oil [powder only]	8042-47-5	1 - 2	232-455-8
	<u>Symbol(s)</u>	<u>Risk Phrase(s)</u>	
	Xi, N	R43, R50/53	

#### 3. HEALTH HAZARDS INFORMATION

##### EMERGENCY OVERVIEW

**Signal Word: WARNING!**

**COMBUSTIBLE DUST - EXPLOSION POTENTIAL!**

**May cause sensitisation by skin contact.**

**Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.**

##### Potential Health Effects

Inhalation	May cause mild respiratory irritation.
Ingestion	Swallowing a relatively large amount of this material is unlikely to produce serious illness or death.
Skin contact	May cause an allergic skin reaction. May cause a rash and itching of the skin. May cause skin defatting with prolonged exposure.

Eye contact May cause mild eye irritation. Signs/symptoms can include redness, swelling, pain and tearing.

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#### 4. EMERGENCY FIRST AID PROCEDURES

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Inhalation Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention. Consult physician if irrigation of respiratory passages occurs.

Ingestion If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Skin Remove contaminated clothing. Wash skin with water, using soap if available. Launder clothing before reuse. Get medical attention if irritation persists.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Note to Physician Provide symptomatic/supportive care as necessary. Treatment based on sound judgment of physician and individual reactions of the patient.

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#### 5. FIRE AND EXPLOSION HAZARD MEASURES

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Flammability Not determined

Flash Point 485°F / 252°C

Flash Point Method Cleveland Open Cup

DOT Category Not regulated

Extinguishing Media Water mist, dry powder, foam, carbon dioxide.

Auto Ignition Temperature Not determined

Flammable Limits Not determined

Special Fire Fighting Procedures: Fight fire from a safe distance and from a protected location. Combustible dust when in a finely divided and highly suspended state. Use water spray to cool fire exposed surface. Do not allow run-off to enter waterways.

Special Protective Equipment Fire fighters should wear full impervious protective clothing, including self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Toxic emissions may result if product is involved in a fire. Fire produces highly toxic sulphur dioxide gas.

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#### 6. ACCIDENTAL RELEASE MEASURES

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Procedures Isolate the area. Turn off/remove all potential sources of ignition. Work only with non-sparking tools and equipment. Wear gloves.

Clean up Methods Scoop up and remove material. Reuse if not contaminated. Do NOT spread spilled product with water.

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## 7. HANDLING AND STORAGE

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Handling	Good hygienic practices should be observed. Work clothes should be washed separately at the end of each work day. Avoid generating or breathing dust. Avoid contact with eyes, skin and clothing. Wash hands before eating, drinking, chewing of gum, using tobacco or using the toilet. Do not reuse this container.
Storage	Store closed containers in a cool, dry, well-ventilated area. Store away from strong oxidizing agents. Avoid exposure to direct sunlight.

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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Engineering Controls	Ensure good ventilation and local exhaust of the working area as necessary to control any air contaminants to within their exposure limits. Discharge from the ventilation system should comply with the air pollution control regulations. Eliminate ignition sources. Avoid dust generation.
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Exposure Limits  
2-mercaptobenzothiazole  
White Mineral Oil

ACGIH TLV  
None Listed  
5mg/m<sup>3</sup>

OSHA PEL  
None Listed  
5mg/m<sup>3</sup>



Respiratory

Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure. Firefighting: Use a Positive Pressure Full Face Self Contained Breathing Apparatus.

Eyes

Wear safety glasses or goggles to protect against exposure.

Skin

Normal work coveralls. Launder contaminated clothing before reuse.

Gloves

Use gloves as a standard industrial handling procedure. All cleanable impervious glove types are acceptable.

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## 3. PHYSICAL AND CHEMICAL PROPERTIES

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Appearance	Light yellow powder or granules
Odour	Slight
Specific Gravity	1525 kg/m <sup>3</sup> at 20°C
Density	1.42 - 1.52 g/cm <sup>3</sup>
Bulk Density	Not determined
Solubility in water	Insoluble
pH	Not determined

Other Solubility	Ethyl acetone, acetone, dilute solution of sodium hydroxide and sodium carbonate, ethyl alcohol
Boiling point	Not determined
Melting Point	171°C min
Molecular Weight	167.26
Molecular Formula	C <sub>7</sub> H <sub>5</sub> NS <sub>2</sub>

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## 10. STABILITY AND REACTIVITY

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Chemical Stability	Stable when stored at room temperature in closed, original container. Stable when stored under normal conditions of handling, use and transportation.
Conditions to avoid	Keep away from heat, sparks and flame. Dispersion of dust. Avoid contact with strong oxidants such as liquid chlorine and concentrated oxygen.
Incompatibility	Strong oxidizing agents. Strong acids.
Hazardous Polymerization	Will not occur
Hazardous Decomposition Products	Carbon monoxide. Oxides of nitrogen and sulphur.
Additional Guidelines	None

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## 11. TOXICOLOGICAL INFORMATION

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Acute oral LD 50 (mg/kg)	3800 mg/kg (Rat)
Acute Dermal LD 50 (mg/kg)	>7940 mg/kg (Rabbit)
Acute Inhalation LC50 (mg/l)	Not determined
Principle routes of Exposure	Eyes. Inhalation. Dermal-skin.
Ingestion	Swallowing a relatively large amount of this material is unlikely to produce serious illness or death.
Skin contact	May cause an allergic skin reaction. May cause skin defatting with prolonged exposure.
Inhalation	May cause mild respiratory irritation.
Eye Contact	May cause mild eye irritation. Signs/symptoms can include redness, swelling, pain and tearing.
Aggravated Conditions	Pulmonary disorders. Dermal ailments. Eye ailments.
Carcinogenicity	This product or one of its ingredients present 0.1% or more, is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC or OSHA. Negative in standard tests using bacteria and/or yeast cells. A NTP 2-year study concluded that there was some evidence of carcinogenic activity in treated rats but no evidence in treated mice.

Primary Irritation Effect	Slightly irritating to skin and eyes. Possible skin sensitizer.
Genotoxicity	Negative for genetic activity in-vitro and in-vivo tests.
Reproductive/Developmental Toxicity	No evidence of teratogenicity in animal studies using rats, mice and hamsters.

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## 12. ECOLOGICAL INFORMATION

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Acute Fish Toxicity	96hr LC50 Rainbow Trout = 0.75 mg/l 96 hr LC 50 Bluegill Sunfish = 1.50 mg/l 96hr LC50 Fathead Minnow = 11.0 mg/l
Acute Crustacean Toxicity	48hr LC Daphnia Magna = 4.10 mg/l
Octonal/Water Coefficient	Log P = 2.41
Chemical Fate Information	Biodegradability: 2% CO <sub>2</sub> evolution
Other Information	Marginally susceptible to indirect photolysis. Bioconcentration Factor (Carp) = < 8

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## 13. DISPOSAL CONSIDERATIONS

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Waste Disposal	This material is not a RCRA hazardous waste. Bury in a licensed landfill or burn in an approved incinerator according to federal, state and local regulations. Empty containers should be handled in a manner not to cause dusting during collection, transportation and disposal.
Contaminated Packaging	If empty container retains product residues, all label precautions must be observed. Store away from ignition sources. Return for reuse according to national or local regulations. Dispose of containers according to national or local regulations.

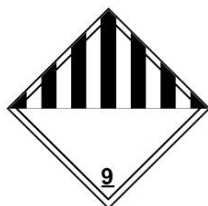
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## 14. TRANSPORT INFORMATION

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<u>DOT</u>	Not regulated
Note	Not listed in DOT Marine Pollutant list Appendix B to 172.101, therefore not regulated as Marine Pollutant by DOT.

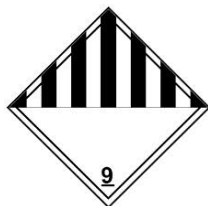
IATA



UN/ID No.	UN 3077
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2-mercaptobenzothiazole)
Hazard Class	9
Packing Group	III

Note Passengers: Packaging instruction 911 (no restricted quantity by package)  
Cargo: Packaging instruction 911 (no restricted quantity by package)

IMDG



UN/ID No.	UN 3077
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2-mercaptobenzothiazole)
Hazard Class	9
Packing Group	III
Marine Pollutant	No
<u>TDG (Canada)</u>	Not regulated

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**15. REGULATORY INFORMATION**

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**LABELLING ACCORDING TO DIR 67/548 EEC**

EC Number: 205-736-8  
Classification based on: TESTS



**IRRITANT (Xi)**



**DANGEROUS FOR THE ENVIRONMENT (N)**

**CLASSIFIED ACCORDING TO DIRECTIVE 199/45/EC**

**Risk Phrases:** R43 – May cause sensitization by skin contact  
R50/53 – Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety Phrases:** S24 – Avoid contact with skin.  
S37 – Wear suitable gloves  
S60 – This material and its container must be disposed of as a hazardous waste.  
S61 – Avoid release to the environment. Refer to Special Instructions/Safety Data Sheet.

FDA Status 21 CFR Regulated for Use under the following sections of 21 CFR:  
175.105: Components of adhesives.  
176.300: Slimecides in paper and paperboard.  
177.2600: Rubber articles intended for repeated use in food contact.

TSCA Listed

Canadian DSL Listed



EINECS/ELINCS Listed

**US Regulations**

SARA Section 302 None Found  
SARA 311/312 Hazard Categories Delayed Fire  
SARA 313 Chemical Component 2 Mercaptobenzothiazole  
RCRA Status Not a RCRA waste

**Canadian Regulations**

WHMIS Hazard Class



D2B TOXIC MATERIALS / Materials Causing Other Toxic Effects

NPRI Not determined

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**16. HAZARD RATING SYSTEM**

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NFPA Rating (Scale 0-4)

0 - Minimal Hazard  
1 - Slight Hazard  
2 - Moderate Hazard  
3 - Serious Hazard  
4 - Severe Hazard

<b>HEALTH</b>	<b>2</b>
<b>FIRE</b>	<b>1</b>
<b>REACTIVITY</b>	<b>0</b>

HMIS Classification (Scale 0-4)

0 - Minimal Hazard  
1 - Slight Hazard  
2 - Moderate Hazard  
3 - Serious Hazard  
4 - Severe Hazard

<b>HEALTH</b>	<b>2</b>
<b>FIRE</b>	<b>1</b>
<b>REACTIVITY</b>	<b>0</b>

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**17. OTHER INFORMATION**

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Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. SunBoss Chemicals Corp. extends no warranty and assumes no responsibility for the accuracy or sufficiency of the content and expressly disclaims all liability for reliance thereon. This safety data sheet provides guidelines for the safe handling of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required. It is the responsibility of the user to comply with all Federal, State and local laws and regulations. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.

ACGIH: American Conference of Governmental Industrial Hygienists Inc.  
CAS: Chemical Abstracts Service (Division of American Chemical Society)  
DOT: Department of Transportation (USA)  
EINECS: European Inventory of Existing Commercial Chemical Substances  
HMIS: Hazardous Materials Identification System (USA)  
IARC: International Agency for Research on Cancer  
IATA: International Air Transport Association  
IMDG: International Marine Code for Dangerous Goods  
LD50: Lethal Dose Medium  
LC50: Lethal Concentration Medium

EC50: Effective Concentration Medium  
NIOSH: National Institute for Occupational Safety and Health  
NFPA: National Fire Protection Association (USA)  
NPRI: National Pollutant Release Inventory (Canada)  
NTP: National Toxicology Program  
OSHA: Occupational Safety and Health Administration (USA)  
PEL: Permissible Exposure Limits  
TDG: Transportation of Dangerous Goods (Canada)  
TLV: Threshold Limit Value  
TWA: Time Weighted Average  
WHMIS: Workplace Hazardous Materials Information Systems (Canada)

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## **18. REVISION DATE**

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Revision number: 5

Date of Issue: September 3, 2014

Changes: Number and format of headings changed; Updates to Sections 1: Identification of Substance - EC information added; 2: Health Hazards Information; 8: Specific Personal Protection Equipment - pictograms added; 14: Transport information - pictograms added; 15: Regulatory information - EC information added; 16: Hazard Rating System - table added; 17: Abbreviations and Acronyms added